REMARKS

A prompt examination and allowance of the present application and pending claims 55-76 is respectfully requested.

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Franklin Dyer

Respectfully submitted,

7/29/04

James S. Hsue
Reg. No. 29,545

Date

OIPE JC24
AUG 03 2004
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Ibrahim Abdulhalim et al.		
Title:	Periodic Patterns and Technique to Control Misalignment Between Two Layers		
Application No.:	Not yet assigned	Filing Date:	October 8, 2003
Examiner:	Not yet assigned	Group Art Unit:	Not yet assigned
Docket No.:	TNCR.196US1	Conf. No.:	Not yet assigned

Box Patent Application
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified continuation application with which this Preliminary Amendment is being filed, as follows:

IN THE SPECIFICATION

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Page 1, please add the following new section:

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of application serial no. 09/833,084, filed April 10, 2001, which application is incorporated herein by reference in its entirety.

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IN THE CLAIMS

Please cancel claims 1 through 54 and replace with new claims 55 through 76 as follows:

55. (New) A method of measuring line profile asymmetries in microelectronic devices, the method comprising the steps of:

directing light at an array of microelectronic features of a microelectronic device;

detecting light scattered back from the array comprising one or more features at one or more wavelengths; and

comparing one or more characteristics of the back-scattered light by performing a model comparison.

56. (New) The method of claim 55 wherein the directing step comprises directing light at substantially a single wavelength.

57. (New) The method of claim 55 wherein the directing step comprises directing light at a plurality of wavelengths.

58. (New) The method of claim 55, wherein the comparing step comprises comparing light intensity.

59. (New) The method of claim 55, wherein the comparing step additionally comprises comparing phase.

60. (New) The method of claim 55, wherein the comparing step additionally comprises comparing ratios of light magnitude and light phase.

61. (New) The method of claim 55, wherein the directing and detecting steps are performed by a spectral scatterometer.

62. (New) The method of claim 55, wherein the detecting step comprises decomposing back-scattered light into S and P components relative to a plane of incidence.

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63. (New) The method of claim 55, wherein the detecting step comprises detecting specular order diffracted light.

64. (New) The method of claim 55, additionally comprising the step of employing the results of the comparing step to detect asymmetries selected from the group consisting of asymmetries within a single layer of the microelectronic device and asymmetries within multiple layers of the microelectronic device.

65. (New) The method of claim 64, additionally comprising the step of controlling a manufacturing process if results of the comparing step indicate an asymmetry in the array.

66. (New) An apparatus for measuring line profile asymmetries in microelectronic devices, said apparatus comprising:

means for directing light at an array of microelectronic features of a microelectronic device;

means for detecting light scattered back from the array comprising one or more features at one or more wavelengths; and

means for comparing one or more characteristics of the back-scattered light by performing a model comparison.

67. (New) The apparatus of claim 66 wherein said directing means comprises means for directing light at substantially a single wavelength.

68. (New) The apparatus of claim 66 wherein said directing means comprises means for directing light at a plurality of wavelengths.

69. (New) The apparatus of claim 66 wherein said comparing means additionally comprises means for comparing light intensity.

70. (New) The apparatus of claim 66 wherein said comparing means additionally comprises means for comparing phase.

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71. (New) The apparatus of claim 66 wherein said comparing means additionally comprises means for comparing ratios of light magnitude and light phase.

72. (New) The apparatus of claim 66 wherein said directing and detecting means comprise a spectral scatterometer.

73. (New) The apparatus of claim 66 wherein said detecting means comprises means for decomposing back-scattered light into S and P components relative to a plane of incidence.

74. (New) The apparatus of claim 66 wherein said detecting means comprises means for detecting specular order diffracted light.

75. (New) The apparatus of claim 66, additionally comprising means for employing the results of the comparing step to detect asymmetries selected from the group consisting of asymmetries within a single layer of the microelectronic device and asymmetries within multiple layers of the microelectronic device.

76. (New) The apparatus of claim 75 additionally comprising means for controlling a manufacturing process if said comparing means indicates an asymmetry in the array.

REMARKS:

Prior to examination, please cancel claims 1-54 and add claims 55-76. Claims 55-76 are **substantial copies** of claims 1-6, 9-19 and 22-26 of U.S. Patent Application Publication No. US2002/0149782 A1 published October 17, 2002. A copy of this U.S. Patent Application Publication is enclosed herewith. A prompt examination and allowance of the present application and pending claims 55-76 is respectfully requested.

Respectfully submitted,

October 8, 2003

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